Sources for Global Climate Change (GCC) Information (updated: January 17, 2014)

The following information is provided for those who wish to learn more about this issue. These materials are organized from the most basic information to more complex issues. Included are a number of the international and national assessments that represent the general scientific consensus on specific topics. It is important to remember that scientists are naturally skeptical and constantly test and retest their hypotheses as more observations are obtained and as knowledge advances. Climate science, like all the sciences, builds on current knowledge to generate deeper and broader understanding.

Below are web sites where you can explore the fundamentals of the role of greenhouse gases in maintaining Earth’s energy balance, and the role of additional (anthropogenic) greenhouse gases that result in an enhanced warming. The latter is called the Enhanced Greenhouse Effect (GHE) and is an important mechanism contributing to “global warming”. Global warming is a “catch all” term that really means that Earth’s globally averaged surface temperature has warmed (~0.80 °C since 1900). A better term for global warming is global climate change.

For the basics of the issue:

1) The National Academy of Sciences (NAS) has a website devoted to Global Climate Change (GCC) ([http://nas-sites.org/americasclimatechoices/](http://nas-sites.org/americasclimatechoices/)). This is an excellent first stop to learn more about the basics of GCC and you might start with their new booklet entitled Climate Change: Evidence, Impacts and Choices. Also there is an NAS booklet entitled Understanding and Responding to Climate Change ([http://dels.nas.edu/materials/booklets/climate-change](http://dels.nas.edu/materials/booklets/climate-change)).


3) More proactive but still well positioned within the IPCC (see below) is the Union of Concerned Scientists which also has a primer on climate change ([http://www.ucsusa.org/global_warming/](http://www.ucsusa.org/global_warming/)).

4) Once you understand the basics of the natural and enhanced GHE and some basic climatology, you might review the most authoritative documents on the issue of global climate change that are produced by the Intergovernmental Panel on Climate Change (called the IPCC). The IPCC assessments are available at [http://www.ipcc.ch](http://www.ipcc.ch). The Fourth Assessment was released in March 2007 and the Fifth Assessment’s Summary for Policymakers was released in fall of 2013 with full release in 2014. In addition to the Summary for Policymakers there are reports from 3 different Working Groups (WG): WG1 (The Physical Science Basis), WG2 (Impacts, Adaptation and Vulnerability) and WG3 (Mitigation of Climate Change).


Here are links to some of the major assessments that are more regional:


One issue in the climate community has been the difference between the surface-based temperature observations and those made from satellite-borne sensors. Those differences largely disappeared when the satellite records were properly corrected. The report addressing these issues was published by the U.S. Climate Change Science Program (CCSP) and is available at \url{http://www.climatescience.gov/Library/sap/sap1-1/finalreport/default.htm}.

**Other resources**
- In November 2006 Sir Nicholas Stern, Head of the Government Economics Service and Adviser to the Government on the economics of climate change and development, presented his report to the Prime Minister and the Chancellor of the Exchequer on the Economics of Climate Change. \url{http://www.hm-treasury.gov.uk/sternreview_index.htm}.
- The Yale School of Forestry and Environmental Studies’ website has excellent content including economic information (\url{http://environment.yale.edu/}).
- The *New Scientist* has posted an article entitled: Climate change: A guide for the perplexed. May 16 2007 at \url{http://environment.newscientist.com/channel/earth/dn11462}. This reviews 26 of the most commons myths and misconceptions about climate change.
- The NAS has an excellent website on energy (\url{http://needtoknow.nas.edu/}) and has an excellent publication titled: What you need to know about energy? available as a free download at \url{http://www.nap.edu/catalog.php?record_id=12204}.
- NAS has now released the final report titled America’s Climate Choices: \url{http://nas-sites.org/americasclimatechoices/sample-page/panel-reports/americas-climate-choices-final-report/}
- For mitigation options you should see the discussion of energy stabilization wedges originally introduced in 2004 by Pascala and Socolow (Science) at \url{http://www.princeton.edu/~cmi/resources/stabwedge.htm}.
- Another valuable website for data & graphs is the Goddard Institute for Space Studies: \url{http://www.giss.nasa.gov/}. There is much information and many data sets available here.
- Another valuable website for data & graphs is the Climate Research Unit at the Univ. of East Anglia and the work by Phil Jones and his group: \url{http://www.cru.uea.ac.uk/}.
- For those who follow blogs: \url{http://www.realclimate.org/}

**Books on the topic for the lay reader include:**

- Spencer Weart: *The Discovery of Global Warming* online: \url{http://aip.org/history/climate/index.html}

This summary was prepared by Dr. Ellen Mosley-Thompson (thompson.4@osu.edu). The OSU Ice Core Paleoclimate Reconstruction Group’s web page \url{http://www-bprc.mps.ohio-state.edu/Icecore/front-page.html} includes free copies of our publications.